

CLAIMS

- 5 1. An image projection apparatus comprising a projector, a frame,
and an at least partially transparent screen:
the frame being arranged to retain the screen under tension, such that the
screen is inclined at an angle with respect to a plane of emission of light
from the projector;
10 the screen having a front surface arranged such that light emitted from the
projector is reflected therefrom; and
the projector being arranged to project an image such that light forming
the image impinges upon the screen such that a virtual image is created
from light reflected from the screen, the virtual image appearing to be
15 located behind the screen.
2. An apparatus according to Claim 1 wherein the screen is a foil.
3. An apparatus according to Claim 2 wherein the foil is rolled about
20 a cylinder when not in use.
3. An apparatus according to any preceding claim wherein the screen
is inclined at approximately 45° to the plane of emission of light from the
projector.
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4. An apparatus according to any preceding claim wherein the screen
comprises a partially reflective layer upon the front surface.
5. An apparatus according to any preceding claim wherein the screen
30 is attached to the frame at the screen's upper and/or lower edges.

6. An apparatus according to any preceding claim wherein the frame comprises first and second retention members arranged to sandwich an edge region of the screen therebetween.
- 5 7. An apparatus according to Claim 6 wherein at least one of the first and second retention members comprises an abrasive coating arranged to contact the screen.
8. An apparatus according to any Claim 6 or Claim 7 wherein the first
10 and second retention members comprise respective openings therethrough arranged to collocate with openings in respective jaws of clamping members attached to tensioning straps.
9. An apparatus according to Claim 8 wherein the openings are
15 arranged to receive a fixing means so as to clamp the screen between the first and second retention members.
10. An apparatus according to either Claim 8 or Claim 9 wherein the tensioning straps are attached to a truss arrangement or a fixed mounting
20 point located in a permanent structure such as a wall, floor or ceiling and are adjustable such that the tension of the screen within the truss arrangement can be varied about the periphery of the screen.
11. An apparatus according to Claim 10 wherein the retention members
25 are substantially parallel to truss members comprising the truss arrangement.
12. An apparatus according to any preceding claim wherein comprising
30 a pigmented reflective member in an optical pathway between a lens of the projector and the screen.

13. Comprising an adjustably angled, mirrored surface in an optical pathway between the lens of the projector and the pigmented reflective member. An apparatus according to Claim 12

5 14. An apparatus according to either Claim 12 or Claim 13 wherein the pigmented member reflects only part of the visible spectrum of light.

15. An apparatus according to Claim 14 wherein the pigmented member appears grey to a viewer.

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16. An apparatus according to any one of Claims 12 to 15 wherein the pigmented reflective member is inclined at an angle with respect to the plane of emission of light from the projector.

15 17. An apparatus according to Claim 12 or to any one of Claims 14 to 16 as dependent from Claim 12 wherein the pigmented reflective member is inclined at an angle substantially parallel with respect to a lens of the projection, is inclined or substantially perpendicular to a plane of emission of light from the projector and/or the mirrored surface.

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18. An apparatus according to any one of Claims 12 to 17 wherein the angle of inclination of the member with respect to the plane of emission of light from the projector is variable.

25 19. An apparatus according to Claim 18 wherein the member comprises a plurality of sections each of which has an independently variable angle of inclination with respect to the axis perpendicular to the plane of emission of light from the projector.

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20. An apparatus according to any one of Claims 12 to 19 wherein the reflective member comprises a mask corresponding to the location of a prop which is placed either in front of, or behind the screen.
- 5 21. An apparatus according to Claim 20 wherein the mask is arranged to produce an area upon the screen upon which the image is not projected.
22. An apparatus according to either Claim 20 or Claim 21 comprising a light source arranged to illuminate the prop.
- 10 23. An apparatus according to any preceding claim comprising a light source arranged to illuminate at least part of a stage lying behind the screen.
- 15 24. An apparatus according to any preceding claim wherein the projector may comprise an LCD, or a television, display.
25. An apparatus according to Claim 24 wherein the display comprises at least one element arranged to be non-emitting in response to control
- 20 from a processor.
26. An apparatus according to Claim 25 wherein the at least one element forms a mask arranged to produce an area upon the screen upon which the image is not projected.
- 25 27. A method of providing a projection apparatus comprising the steps of:
- (i) resting a frame upon a number of elevation means;
 - (ii) attaching legs sections to the frame;
 - 30 (iii) increasing the height of the elevation means;
 - (iv) adding further leg sections;

- (vi) attaching a lower edge of a screen to a lower rear piece of the frame;
- (vii) raising an upper edge of the screen to adjacent an upper front section of the frame; and
- 5 (viii) attaching the upper edge of the screen to the upper front section of the frame.

28. The method of Claim 27 comprising providing the elevation means in the form of a jack.

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29. The method of either Claim 27 or Claim 28 comprising providing the screen in the form of a film.

30. The method of Claim 29 comprising removing a roll of screen film
15 from a protective cylindrical casing

31. The method of either Claim 29 or Claim 30 comprising laying the screen upon a dust-free protective sheet.

20 32. The method of any one of Claims 27 to 31 comprising attaching the lower edge of the screen to a retention member.

33. The method of any one of Claims 27 to 32 comprising attaching the upper edge of the screen to a retention member.

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34. The method of either Claim 32 or Claim 33 comprising securing the screen in position using respective fixing means passing through either or both of the respective retention members, and the screen, and respective locking means arranged to lock the respective fixing means in
30 position.

35. The method of any one Claims 32 to 34 attaching tensioning means to either, or both, of the respective retention members.

36. The method of Claim 35 comprising attaching the tensioning means
5 adjacent at least some of the respective fixing means.

37. The method of either Claim 35 or Claim 36 comprising attaching the tensioning means associated with the retention member attached to the lower edge of the screen to a lower rear piece of the frame in step (vi).
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38. The method of either Claim 35 or Claim 36 comprising attaching the tensioning means associated with the retention member attached to the upper edge of the screen to an upper front piece of the frame in step (viii).
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39. The method of any one of Claims 35 to 38 comprising providing the tensioning members in the form of ratchet straps.

40. The method of any one of Claims 35 to 39 comprising tensioning
20 each of the tensioning means such that the screen is flat and substantially wrinkle free.

41. The method of any one of Claims 27 to 40 comprising attaching a rope to the second retention member and passing the rope over the upper
25 frame and using the rope in step (vii) to raise the screen.

42. The method of any one of Claims 27 to 41 comprising forming the frame form a truss work.

30 43. A projection apparatus constructed according to any one of Claims 27 to 42.